



## SEQUENCE LISTING

&lt;110&gt; CNRS

&lt;120&gt; RECOMBINANT PROTEINS AND MOLECULAR COMPLEXES DERIVED FROM THESE PROTEINS, ANALOGOUS TO MOLECULES INVOLVED IN IMMUNE RESPONSES

&lt;130&gt; 1721-47

&lt;140&gt; 10/048,116

&lt;141&gt; 2002-02-27

&lt;150&gt; PCT/FR00/02193

&lt;151&gt; 2000-07-28

&lt;150&gt; FR99/09862

&lt;151&gt; 1999-07-29

&lt;160&gt; 8

&lt;170&gt; PatentIn Ver. 2.0

&lt;210&gt; 1

&lt;211&gt; 1517

&lt;212&gt; DNA

&lt;213&gt; Artificial Sequence

&lt;220&gt;

&lt;223&gt; Description of Artificial Sequence: construct coding IAalpha(d)/Fc

&lt;220&gt;

&lt;221&gt; CDS

&lt;222&gt; (18)..(1502)

&lt;400&gt; 1

|            |         |     |     |     |     |     |     |     |     |     |     |     |    |
|------------|---------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|----|
| aaagggggga | attcagg | atg | ccg | tgc | agc | aga | gct | ctg | att | ctg | ggg | gtc | 50 |
|            |         | Met | Pro | Cys | Ser | Arg | Ala | Leu | Ile | Leu | Gly | Val |    |
|            |         | 1   |     |     |     |     | 5   |     |     |     | 10  |     |    |

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |    |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|----|
| ctc | gcc | ctg | aac | acc | atg | ctc | agc | ctc | tgc | gga | ggt | gaa | gac | gac | att | 98 |
| Leu | Ala | Leu | Asn | Thr | Met | Leu | Ser | Leu | Cys | Gly | Gly | Glu | Asp | Asp | Ile |    |
| 15  |     |     |     |     |     | 20  |     |     |     |     |     | 25  |     |     |     |    |

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| gag | gcc | gac | cac | gta | ggc | ttc | tat | ggt | aca | act | gtt | tat | cag | tct | cct | 146 |
| Glu | Ala | Asp | His | Val | Gly | Phe | Tyr | Gly | Thr | Thr | Val | Tyr | Gln | Ser | Pro |     |
| 30  |     |     |     |     |     |     |     | 35  |     |     |     | 40  |     |     |     |     |

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| gga | gac | att | ggc | cag | tac | aca | cat | gaa | ttt | gat | ggt | gat | gag | ttg | ttc | 194 |
| Gly | Asp | Ile | Gly | Gln | Tyr | Thr | His | Glu | Phe | Asp | Gly | Asp | Glu | Leu | Phe |     |
| 45  |     |     |     |     |     |     | 50  |     |     |     | 55  |     |     |     |     |     |

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| tat | gtg | gac | ttg | gat | aag | aag | aaa | act | gtc | tgg | agg | ctt | cct | gag | ttt | 242 |
| Tyr | Val | Asp | Leu | Asp | Lys | Lys | Lys | Thr | Val | Trp | Arg | Leu | Pro | Glu | Phe |     |
| 60  |     |     |     |     |     |     |     | 65  |     | 70  |     | 75  |     |     |     |     |

|   |     |
|---|-----|
| ggc caa ttg ata ctc ttt gag ccc caa ggt gga ctg caa aac ata gct<br>Gly Gln Leu Ile Leu Phe Glu Pro Gln Gly Gly Leu Gln Asn Ile Ala<br>80 85 90        | 290 |
| gca gaa aaa cac aac ttg gga atc ttg act aag agg tca aat ttc acc<br>Ala Glu Lys His Asn Leu Gly Ile Leu Thr Lys Arg Ser Asn Phe Thr<br>95 100 105      | 338 |
| cca gct acc aat gag gct cct caa gcg act gtg ttc ccc aag tcc cct<br>Pro Ala Thr Asn Glu Ala Pro Gln Ala Thr Val Phe Pro Lys Ser Pro<br>110 115 120     | 386 |
| gtg ctg ctg ggt cag ccc aac acc ctt atc tgc ttt gtg gac aac atc<br>Val Leu Leu Gly Gln Pro Asn Thr Leu Ile Cys Phe Val Asp Asn Ile<br>125 130 135     | 434 |
| ttc cca cct gtg atc aac atc aca tgg ctc aga aat agc aag tca gtc<br>Phe Pro Pro Val Ile Asn Ile Thr Trp Leu Arg Asn Ser Lys Ser Val<br>140 145 150 155 | 482 |
| aca gac ggc gtt tat gag acc agc ttc ctc gtc aac cgt gac cat tcc<br>Thr Asp Gly Val Tyr Glu Thr Ser Phe Leu Val Asn Arg Asp His Ser<br>160 165 170     | 530 |
| ttc cac aag ctg tct tat ctc acc ttc atc cct tct gat gat gac att<br>Phe His Lys Leu Ser Tyr Leu Thr Phe Ile Pro Ser Asp Asp Asp Ile<br>175 180 185     | 578 |
| tat gac tgc aag gtg gag cac tgg ggc ctg gag gag ccg gtt ctg aaa<br>Tyr Asp Cys Lys Val Glu His Trp Gly Leu Glu Pro Val Leu Lys<br>190 195 200         | 626 |
| cac tgg gaa cct gag att cca gcc ccc atg tca gag ctg aca gaa act<br>His Trp Glu Pro Glu Ile Pro Ala Pro Met Ser Glu Leu Thr Glu Thr<br>205 210 215     | 674 |
| gga ggt gga gga tcc act aca gct cca tca gct cag ctc gaa aaa gag<br>Gly Gly Gly Ser Thr Thr Ala Pro Ser Ala Gln Leu Glu Lys Glu<br>220 225 230 235     | 722 |
| ctc cag gcc ctg gag aag gaa aat gca cag ctg gaa tgg gag ttg caa<br>Leu Gln Ala Leu Glu Lys Glu Asn Ala Gln Leu Glu Trp Glu Leu Gln<br>240 245 250     | 770 |
| gca ctg gaa aag gaa ctg gct cag gca gca tct gag ccc aga ggg ccc<br>Ala Leu Glu Lys Glu Leu Ala Gln Ala Ala Ser Glu Pro Arg Gly Pro<br>255 260 265     | 818 |
| aca atc aag ccc tgt cct cca tgc aaa tgc cca gca cct aac ctc ttg<br>Thr Ile Lys Pro Cys Pro Pro Cys Lys Cys Pro Ala Pro Asn Leu Leu<br>270 275 280     | 866 |
| ggg gga cca tcc gtc ttc atc ttc cct cca aag atc aag gat gta ctc<br>Gly Gly Pro Ser Val Phe Ile Phe Pro Pro Lys Ile Lys Asp Val Leu<br>285 290 295     | 914 |
| atg atc tcc ctg agc ccc ata gtc aca tgt gtg gtg gat gtg agc   | 962 |

|   |     |     |     |      |
|---|-----|-----|-----|------|
| Met Ile Ser Leu Ser Pro Ile Val Thr Cys Val Val Val Asp Val Ser |     |     |     |      |
| 300   | 305 | 310 | 315 |      |
| gag gat gac cca gat gtc cag atc agc tgg ttt gtg aac aac gtg gaa |     |     |     | 1010 |
| Glu Asp Asp Pro Asp Val Gln Ile Ser Trp Phe Val Asn Asn Val Glu |     |     |     |      |
| 320   | 325 | 330 |     |      |
| gta cac aca gct cag aca caa acc cat aga gag gat tac aac agt act |     |     |     | 1058 |
| Val His Thr Ala Gln Thr Gln His Arg Glu Asp Tyr Asn Ser Thr     |     |     |     |      |
| 335   | 340 | 345 |     |      |
| ctc cgg gtc agt gcc ctc ccc atc cag cac cag gac tgg atg agt     |     |     |     | 1106 |
| Leu Arg Val Val Ser Ala Leu Pro Ile Gln His Gln Asp Trp Met Ser |     |     |     |      |
| 350   | 355 | 360 |     |      |
| ggc aag gag ttc aaa tgc aag gtc aac aac aaa gac ctc cca gcg ccc |     |     |     | 1154 |
| Gly Lys Glu Phe Lys Cys Lys Val Asn Asn Lys Asp Leu Pro Ala Pro |     |     |     |      |
| 365   | 370 | 375 |     |      |
| atc gag aga acc atc tca aaa ccc aaa ggg tca gta aga gct cca cag |     |     |     | 1202 |
| Ile Glu Arg Thr Ile Ser Lys Pro Lys Gly Ser Val Arg Ala Pro Gln |     |     |     |      |
| 380   | 385 | 390 | 395 |      |
| gta tat gtc ttg cct cca cca gaa gaa gag atg act aag aaa cag gtc |     |     |     | 1250 |
| Val Tyr Val Leu Pro Pro Glu Glu Met Thr Lys Lys Gln Val         |     |     |     |      |
| 400   | 405 | 410 |     |      |
| act ctg acc tgc atg gtc aca gac ttc atg cct gaa gac att tac gtg |     |     |     | 1298 |
| Thr Leu Thr Cys Met Val Thr Asp Phe Met Pro Glu Asp Ile Tyr Val |     |     |     |      |
| 415   | 420 | 425 |     |      |
| gag tgg acc aac aac ggg aaa aca gag cta aac tac aag aac act gaa |     |     |     | 1346 |
| Glu Trp Thr Asn Asn Gly Lys Thr Glu Leu Asn Tyr Lys Asn Thr Glu |     |     |     |      |
| 430   | 435 | 440 |     |      |
| cca gtc ctg gac tct gat ggt tct tac ttc atg tac agc aag ctg aga |     |     |     | 1394 |
| Pro Val Leu Asp Ser Asp Gly Ser Tyr Phe Met Tyr Ser Lys Leu Arg |     |     |     |      |
| 445   | 450 | 455 |     |      |
| gtg gaa aag aac tgg gtg gaa aga aat agc tac tcc tgt tca gtg     |     |     |     | 1442 |
| Val Glu Lys Lys Asn Trp Val Glu Arg Asn Ser Tyr Ser Cys Ser Val |     |     |     |      |
| 460   | 465 | 470 | 475 |      |
| gtc cac gag ggt ctg cac aat cac cac acg act aag agc ttc tcc cgg |     |     |     | 1490 |
| Val His Glu Gly Leu His Asn His His Thr Thr Lys Ser Phe Ser Arg |     |     |     |      |
| 480   | 485 | 490 |     |      |
| act ccg ggt aaa tgatgactcg acctg                                |     |     |     | 1517 |
| Thr Pro Gly Lys   |     |     |     |      |
| 495   |     |     |     |      |

<210> 2  
 <211> 495  
 <212> PRT  
 <213> Artificial Sequence

<400> 2

Met Pro Cys Ser Arg Ala Leu Ile Leu Gly Val Leu Ala Leu Asn Thr  
1 5 10 15

Met Leu Ser Leu Cys Gly Gly Glu Asp Asp Ile Glu Ala Asp His Val  
20 25 30

Gly Phe Tyr Gly Thr Thr Val Tyr Gln Ser Pro Gly Asp Ile Gly Gln  
35 40 45

Tyr Thr His Glu Phe Asp Gly Asp Glu Leu Phe Tyr Val Asp Leu Asp  
50 55 60

Lys Lys Lys Thr Val Trp Arg Leu Pro Glu Phe Gly Gln Leu Ile Leu  
65 70 75 80

Phe Glu Pro Gln Gly Gly Leu Gln Asn Ile Ala Ala Glu Lys His Asn  
85 90 95

Leu Gly Ile Leu Thr Lys Arg Ser Asn Phe Thr Pro Ala Thr Asn Glu  
100 105 110

Ala Pro Gln Ala Thr Val Phe Pro Lys Ser Pro Val Leu Leu Gly Gln  
115 120 125

Pro Asn Thr Leu Ile Cys Phe Val Asp Asn Ile Phe Pro Pro Val Ile  
130 135 140

Asn Ile Thr Trp Leu Arg Asn Ser Lys Ser Val Thr Asp Gly Val Tyr  
145 150 155 160

Glu Thr Ser Phe Leu Val Asn Arg Asp His Ser Phe His Lys Leu Ser  
165 170 175

Tyr Leu Thr Phe Ile Pro Ser Asp Asp Asp Ile Tyr Asp Cys Lys Val  
180 185 190

Glu His Trp Gly Leu Glu Glu Pro Val Leu Lys His Trp Glu Pro Glu  
195 200 205

Ile Pro Ala Pro Met Ser Glu Leu Thr Glu Thr Gly Gly Gly Ser  
210 215 220

Thr Thr Ala Pro Ser Ala Gln Leu Glu Lys Glu Leu Gln Ala Leu Glu  
225 230 235 240

Lys Glu Asn Ala Gln Leu Glu Trp Glu Leu Gln Ala Leu Glu Lys Glu  
245 250 255

Leu Ala Gln Ala Ala Ser Glu Pro Arg Gly Pro Thr Ile Lys Pro Cys  
260 265 270

Pro Pro Cys Lys Cys Pro Ala Pro Asn Leu Leu Gly Gly Pro Ser Val  
275 280 285

Phe Ile Phe Pro Pro Lys Ile Lys Asp Val Leu Met Ile Ser Leu Ser  
290 295 300

Pro Ile Val Thr Cys Val Val Val Asp Val Ser Glu Asp Asp Pro Asp  
305 310 315 320

Val Gln Ile Ser Trp Phe Val Asn Asn Val Glu Val His Thr Ala Gln  
325 330 335

Thr Gln Thr His Arg Glu Asp Tyr Asn Ser Thr Leu Arg Val Val Ser  
340 345 350

Ala Leu Pro Ile Gln His Gln Asp Trp Met Ser Gly Lys Glu Phe Lys  
355 360 365

Cys Lys Val Asn Asn Lys Asp Leu Pro Ala Pro Ile Glu Arg Thr Ile  
370 375 380

Ser Lys Pro Lys Gly Ser Val Arg Ala Pro Gln Val Tyr Val Leu Pro  
385 390 395 400

Pro Pro Glu Glu Glu Met Thr Lys Lys Gln Val Thr Leu Thr Cys Met  
405 410 415

Val Thr Asp Phe Met Pro Glu Asp Ile Tyr Val Glu Trp Thr Asn Asn  
420 425 430

Gly Lys Thr Glu Leu Asn Tyr Lys Asn Thr Glu Pro Val Leu Asp Ser  
435 440 445

Asp Gly Ser Tyr Phe Met Tyr Ser Lys Leu Arg Val Glu Lys Lys Asn  
450 455 460

Trp Val Glu Arg Asn Ser Tyr Ser Cys Ser Val Val His Glu Gly Leu  
465 470 475 480

His Asn His His Thr Thr Lys Ser Phe Ser Arg Thr Pro Gly Lys  
485 490 495

<210> 3

<211> 1485

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:coding region  
of SEQ ID NO:1

<220>

<221> CDS

<222> (1)..(1485)

<400> 3

atg ccg tgc agc aga gct ctg att ctg ggg gtc ctc gcc ctg aac acc 48  
Met Pro Cys Ser Arg Ala Leu Ile Leu Gly Val Leu Ala Leu Asn Thr  
1 5 10 15

atg ctc agc ctc tgc gga ggt gaa gac gac att gag gcc gac cac gta 96

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Met | Leu | Ser | Leu | Cys | Gly | Gly | Glu | Asp | Asp | Ile | Glu | Ala | Asp | His | Val |     |
| 20  |     |     |     |     |     |     | 25  |     |     |     |     | 30  |     |     |     |     |
| ggc | tcc | tat | ggt | aca | act | gtt | tat | cag | tct | cct | gga | gac | att | ggc | cag | 144 |
| Gly | Phe | Tyr | Gly | Thr | Thr | Val | Tyr | Gln | Ser | Pro | Gly | Asp | Ile | Gly | Gln |     |
| 35  |     |     |     |     |     | 40  |     |     |     |     |     | 45  |     |     |     |     |
| tac | aca | cat | gaa | ttt | gat | ggt | gat | gag | ttg | tcc | tat | gtg | gac | ttg | gat | 192 |
| Tyr | Thr | His | Glu | Phe | Asp | Gly | Asp | Glu | Leu | Phe | Tyr | Val | Asp | Leu | Asp |     |
| 50  |     |     |     | 55  |     |     |     |     |     |     | 60  |     |     |     |     |     |
| aag | aag | aaa | act | gtc | tgg | agg | ctt | cct | gag | ttt | ggc | caa | ttg | ata | ctc | 240 |
| Lys | Lys | Lys | Thr | Val | Trp | Arg | Leu | Pro | Glu | Phe | Gly | Gln | Leu | Ile | Leu |     |
| 65  |     |     |     | 70  |     |     |     |     |     |     | 75  |     |     | 80  |     |     |
| ttt | gag | ccc | caa | ggt | gga | ctg | caa | aac | ata | gct | gca | gaa | aaa | cac | aac | 288 |
| Phe | Glu | Pro | Gln | Gly | Gly | Leu | Gln | Asn | Ile | Ala | Ala | Glu | Lys | His | Asn |     |
| 85  |     |     |     |     | 90  |     |     |     |     |     |     | 95  |     |     |     |     |
| ttg | gga | atc | ttg | act | aag | agg | tca | aat | ttc | acc | cca | gct | acc | aat | gag | 336 |
| Leu | Gly | Ile | Leu | Thr | Lys | Arg | Ser | Asn | Phe | Thr | Pro | Ala | Thr | Asn | Glu |     |
| 100 |     |     |     | 105 |     |     |     |     |     |     | 110 |     |     |     |     |     |
| gct | cct | caa | gcg | act | gtg | ttc | ccc | aag | tcc | cct | gtg | ctg | ctg | ggt | cag | 384 |
| Ala | Pro | Gln | Ala | Thr | Val | Phe | Pro | Lys | Ser | Pro | Val | Leu | Leu | Gly | Gln |     |
| 115 |     |     |     |     | 120 |     |     |     |     |     | 125 |     |     |     |     |     |
| ccc | aac | acc | ctt | atc | tgc | ttt | gtg | gac | aac | atc | ttc | cca | cct | gtg | atc | 432 |
| Pro | Asn | Thr | Leu | Ile | Cys | Phe | Val | Asp | Asn | Ile | Phe | Pro | Pro | Val | Ile |     |
| 130 |     |     |     | 135 |     |     |     |     |     |     | 140 |     |     |     |     |     |
| aac | atc | aca | tgg | ctc | aga | aat | agc | aag | tca | gtc | aca | gac | ggc | gtt | tat | 480 |
| Asn | Ile | Thr | Trp | Leu | Arg | Asn | Ser | Lys | Ser | Val | Thr | Asp | Gly | Val | Tyr |     |
| 145 |     |     |     | 150 |     |     |     |     |     | 155 |     |     | 160 |     |     |     |
| gag | acc | agc | ttc | ctc | gtc | aac | cgt | gac | cat | tcc | ttc | cac | aag | ctg | tct | 528 |
| Glu | Thr | Ser | Phe | Leu | Val | Asn | Arg | Asp | His | Ser | Phe | His | Lys | Leu | Ser |     |
| 165 |     |     |     |     | 170 |     |     |     |     |     | 175 |     |     |     |     |     |
| tat | ctc | acc | ttc | atc | cct | tct | gat | gat | gac | att | tat | gac | tgc | aag | gtg | 576 |
| Tyr | Leu | Thr | Phe | Ile | Pro | Ser | Asp | Asp | Asp | Ile | Tyr | Asp | Cys | Lys | Val |     |
| 180 |     |     |     | 185 |     |     |     |     |     |     | 190 |     |     |     |     |     |
| gag | cac | tgg | ggc | ctg | gag | gag | ccg | gtt | ctg | aaa | cac | tgg | gaa | cct | gag | 624 |
| Glu | His | Trp | Gly | Leu | Glu | Glu | Pro | Val | Leu | Lys | His | Trp | Glu | Pro | Glu |     |
| 195 |     |     |     |     | 200 |     |     |     |     |     | 205 |     |     |     |     |     |
| att | cca | gcc | ccc | atg | tca | gag | ctg | aca | gaa | act | gga | ggt | gga | gga | tcc | 672 |
| Ile | Pro | Ala | Pro | Met | Ser | Glu | Leu | Thr | Glu | Thr | Gly | Gly | Gly | Gly | Ser |     |
| 210 |     |     |     |     | 215 |     |     |     |     |     | 220 |     |     |     |     |     |
| act | aca | gct | cca | tca | gct | cag | ctc | gaa | aaa | gag | ctc | cag | gcc | ctg | gag | 720 |
| Thr | Thr | Ala | Pro | Ser | Ala | Gln | Leu | Glu | Lys | Glu | Leu | Gln | Ala | Leu | Glu |     |
| 225 |     |     |     |     | 230 |     |     |     |     | 235 |     |     | 240 |     |     |     |
| aag | gaa | aat | gca | cag | ctg | gaa | tgg | gag | ttg | caa | gca | ctg | gaa | aag | gaa | 768 |
| Lys | Glu | Asn | Ala | Gln | Leu | Glu | Trp | Glu | Leu | Gln | Ala | Leu | Glu | Lys | Glu |     |

| 245   | 250 | 255 |      |
|---|-----|-----|------|
| ctg gct cag gca gca tct gag ccc aga ggg ccc aca atc aag ccc tgt<br>Leu Ala Gln Ala Ala Ser Glu Pro Arg Gly Pro Thr Ile Lys Pro Cys<br>260 | 265 | 270 | 816  |
| cct cca tgc aaa tgc cca gca cct aac ctc ttg ggt gga cca tcc gtc<br>Pro Pro Cys Lys Cys Pro Ala Pro Asn Leu Leu Gly Gly Pro Ser Val<br>275 | 280 | 285 | 864  |
| ttc atc ttc cct cca aag atc aag gat gta ctc atg atc tcc ctg agc<br>Phe Ile Phe Pro Pro Lys Ile Lys Asp Val Leu Met Ile Ser Leu Ser<br>290 | 295 | 300 | 912  |
| ccc ata gtc aca tgt gtg gtg gat gtg agc gag gat gac cca gat<br>Pro Ile Val Thr Cys Val Val Asp Val Ser Glu Asp Asp Pro Asp<br>305         | 310 | 315 | 960  |
| gtc cag atc agc tgg ttt gtg aac aac gtg gaa gta cac aca gct cag<br>Val Gln Ile Ser Trp Phe Val Asn Asn Val Glu Val His Thr Ala Gln<br>325 | 330 | 335 | 1008 |
| aca caa acc cat aga gag gat tac aac agt act ctc cgg gtg gtc agt<br>Thr Gln Thr His Arg Glu Asp Tyr Asn Ser Thr Leu Arg Val Val Ser<br>340 | 345 | 350 | 1056 |
| gcc ctc ccc atc cag cac cag gac tgg atg agt ggc aag gag ttc aaa<br>Ala Leu Pro Ile Gln His Gln Asp Trp Met Ser Gly Lys Glu Phe Lys<br>355 | 360 | 365 | 1104 |
| tgc aag gtc aac aac aaa gac ctc cca gcg ccc atc gag aga acc atc<br>Cys Lys Val Asn Asn Lys Asp Leu Pro Ala Pro Ile Glu Arg Thr Ile<br>370 | 375 | 380 | 1152 |
| tca aaa ccc aaa ggg tca gta aga gct cca cag gta tat gtc ttg cct<br>Ser Lys Pro Lys Gly Ser Val Arg Ala Pro Gln Val Tyr Val Leu Pro<br>385 | 390 | 395 | 1200 |
| cca cca gaa gaa gag atg act aag aaa cag gtc act ctg acc tgc atg<br>Pro Pro Glu Glu Met Thr Lys Lys Gln Val Thr Leu Thr Cys Met<br>405     | 410 | 415 | 1248 |
| gtc aca gac ttc atg cct gaa gac att tac gtg gag tgg acc aac aac<br>Val Thr Asp Phe Met Pro Glu Asp Ile Tyr Val Glu Trp Thr Asn Asn<br>420 | 425 | 430 | 1296 |
| ggg aaa aca gag cta aac tac aag aac act gaa cca gtc ctg gac tct<br>Gly Lys Thr Glu Leu Asn Tyr Lys Asn Thr Glu Pro Val Leu Asp Ser<br>435 | 440 | 445 | 1344 |
| gat ggt tct tac ttc atg tac agc aag ctg aga gtg gaa aag aag aac<br>Asp Gly Ser Tyr Phe Met Tyr Ser Lys Leu Arg Val Glu Lys Lys Asn<br>450 | 455 | 460 | 1392 |
| tgg gtg gaa aga aat agc tac tcc tgt tca gtg gtc cac gag ggt ctg<br>Trp Val Glu Arg Asn Ser Tyr Ser Cys Ser Val Val His Glu Gly Leu<br>465 | 470 | 475 | 1440 |
|   |     |     | 480  |

|   |      |
|---|------|
| cac aat cac cac acg act aag agc ttc tcc cg <sup>g</sup> act ccg ggt aaa | 1485 |
| His Asn His His Thr Thr Lys Ser Phe Ser Arg Thr Pro Gly Lys             |      |
| 485   | 490  |
|   | 495  |

<210> 4  
<211> 495  
<212> PRT  
<213> Artificial Sequence

|   |     |     |     |
|---|-----|-----|-----|
| <400> 4   |     |     |     |
| Met Pro Cys Ser Arg Ala Leu Ile Leu Gly Val Leu Ala Leu Asn Thr |     |     |     |
| 1   | 5   | 10  | 15  |
| Met Leu Ser Leu Cys Gly Gly Asp Asp Ile Glu Ala Asp His Val     |     |     |     |
| 20  | 25  | 30  |     |
| Gly Phe Tyr Gly Thr Thr Val Tyr Gln Ser Pro Gly Asp Ile Gly Gln |     |     |     |
| 35  | 40  | 45  |     |
| Tyr Thr His Glu Phe Asp Gly Asp Glu Leu Phe Tyr Val Asp Leu Asp |     |     |     |
| 50  | 55  | 60  |     |
| Lys Lys Lys Thr Val Trp Arg Leu Pro Glu Phe Gly Gln Leu Ile Leu |     |     |     |
| 65  | 70  | 75  | 80  |
| Phe Glu Pro Gln Gly Gly Leu Gln Asn Ile Ala Ala Glu Lys His Asn |     |     |     |
| 85  | 90  | 95  |     |
| Leu Gly Ile Leu Thr Lys Arg Ser Asn Phe Thr Pro Ala Thr Asn Glu |     |     |     |
| 100   | 105 | 110 |     |
| Ala Pro Gln Ala Thr Val Phe Pro Lys Ser Pro Val Leu Leu Gly Gln |     |     |     |
| 115   | 120 | 125 |     |
| Pro Asn Thr Leu Ile Cys Phe Val Asp Asn Ile Phe Pro Pro Val Ile |     |     |     |
| 130   | 135 | 140 |     |
| Asn Ile Thr Trp Leu Arg Asn Ser Lys Ser Val Thr Asp Gly Val Tyr |     |     |     |
| 145   | 150 | 155 | 160 |
| Glu Thr Ser Phe Leu Val Asn Arg Asp His Ser Phe His Lys Leu Ser |     |     |     |
| 165   | 170 | 175 |     |
| Tyr Leu Thr Phe Ile Pro Ser Asp Asp Asp Ile Tyr Asp Cys Lys Val |     |     |     |
| 180   | 185 | 190 |     |
| Glu His Trp Gly Leu Glu Glu Pro Val Leu Lys His Trp Glu Pro Glu |     |     |     |
| 195   | 200 | 205 |     |
| Ile Pro Ala Pro Met Ser Glu Leu Thr Glu Thr Gly Gly Gly Ser     |     |     |     |
| 210   | 215 | 220 |     |
| Thr Thr Ala Pro Ser Ala Gln Leu Glu Lys Glu Leu Gln Ala Leu Glu |     |     |     |
| 225   | 230 | 235 | 240 |

Lys Glu Asn Ala Gln Leu Glu Trp Glu Leu Gln Ala Leu Glu Lys Glu  
245 250 255

Leu Ala Gln Ala Ala Ser Glu Pro Arg Gly Pro Thr Ile Lys Pro Cys  
260 265 270

Pro Pro Cys Lys Cys Pro Ala Pro Asn Leu Leu Gly Gly Pro Ser Val  
275 280 285

Phe Ile Phe Pro Pro Lys Ile Lys Asp Val Leu Met Ile Ser Leu Ser  
290 295 300

Pro Ile Val Thr Cys Val Val Val Asp Val Ser Glu Asp Asp Pro Asp  
305 310 315 320

Val Gln Ile Ser Trp Phe Val Asn Asn Val Glu Val His Thr Ala Gln  
325 330 335

Thr Gln Thr His Arg Glu Asp Tyr Asn Ser Thr Leu Arg Val Val Ser  
340 345 350

Ala Leu Pro Ile Gln His Gln Asp Trp Met Ser Gly Lys Glu Phe Lys  
355 360 365

Cys Lys Val Asn Asn Lys Asp Leu Pro Ala Pro Ile Glu Arg Thr Ile  
370 375 380

Ser Lys Pro Lys Gly Ser Val Arg Ala Pro Gln Val Tyr Val Leu Pro  
385 390 395 400

Pro Pro Glu Glu Glu Met Thr Lys Lys Gln Val Thr Leu Thr Cys Met  
405 410 415

Val Thr Asp Phe Met Pro Glu Asp Ile Tyr Val Glu Trp Thr Asn Asn  
420 425 430

Gly Lys Thr Glu Leu Asn Tyr Lys Asn Thr Glu Pro Val Leu Asp Ser  
435 440 445

Asp Gly Ser Tyr Phe Met Tyr Ser Lys Leu Arg Val Glu Lys Lys Asn  
450 455 460

Trp Val Glu Arg Asn Ser Tyr Ser Cys Ser Val Val His Glu Gly Leu  
465 470 475 480

His Asn His His Thr Thr Lys Ser Phe Ser Arg Thr Pro Gly Lys  
485 490 495

<210> 5

<211> 951

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:construct  
coding LACK/I-Abeta(d)/leucine zipper

<220>

<221> CDS

<222> (21)..(938)

<400> 5

aaagggggga attcttagag atg gct ctg cag atc ccc agc ctc ctc ctc tca 53  
Met Ala Leu Gln Ile Pro Ser Leu Leu Leu Ser  
1 5 10

gct gct gtg gtg ctg atg gtg ctg agc agc ccc ggg act gag ggc 101  
Ala Ala Val Val Leu Met Val Leu Ser Ser Pro Gly Thr Glu Gly  
15 20 25

gga aac tcc atc tgc ttc tcg ccg tcg gag cac ccg atc gtg gtg 149  
Gly Asn Ser Ile Cys Phe Ser Pro Ser Leu Glu His Pro Ile Val Val  
30 35 40

tcc ggc agc tgg gac gga ggt ggg ggc tca cta gtg ccc cga ggc tct 197  
Ser Gly Ser Trp Asp Gly Gly Ser Leu Val Pro Arg Gly Ser  
45 50 55

gga ggt gga ggc tcc gaa agg cat ttc gtg gtc cag ttc aag ggc gag 245  
Gly Gly Gly Ser Glu Arg His Phe Val Val Gln Phe Lys Gly Glu  
60 65 70 75

tgc tac tac acc aac ggg acg cag cgc ata cgg ctc gtg acc aga tac 293  
Cys Tyr Tyr Thr Asn Gly Thr Gln Arg Ile Arg Leu Val Thr Arg Tyr  
80 85 90

atc tac aac cgg gag gag tac gtg cgc tac gac agc gac gtg ggc gag 341  
Ile Tyr Asn Arg Glu Glu Tyr Val Arg Tyr Asp Ser Asp Val Gly Glu  
95 100 105

tac cgc gcg gtg acc gag ctg ggg cgg cca gac gcc gag tac tgg aac 389  
Tyr Arg Ala Val Thr Glu Leu Gly Arg Pro Asp Ala Glu Tyr Trp Asn  
110 115 120

agc cag ccg gag atc ctg gag cga acg cgg gcc gag gtg gac acg gcg 437  
Ser Gln Pro Glu Ile Leu Glu Arg Thr Arg Ala Glu Val Asp Thr Ala  
125 130 135

tgc aga cac aac tac gag ggg cgg gag acc agc acc tcc ctg cgg cgg 485  
Cys Arg His Asn Tyr Glu Gly Pro Glu Thr Ser Thr Ser Leu Arg Arg  
140 145 150 155

ctt gaa cag ccc aat gtc gcc atc tcc ctg tcc agg aca gag gcc ctc 533  
Leu Glu Gln Pro Asn Val Ala Ile Ser Leu Ser Arg Thr Glu Ala Leu  
160 165 170

aac cac cac aac act ctg gtc tgt tcg gtg aca gat ttc tac cca gcc 581  
Asn His His Asn Thr Leu Val Cys Ser Val Thr Asp Phe Tyr Pro Ala  
175 180 185

aag atc aaa gtg cgc tgg ttc agg aat ggc cag gag gag aca gtg ggg 629  
Lys Ile Lys Val Arg Trp Phe Arg Asn Gly Gln Glu Glu Thr Val Gly  
190 195 200

gtc tca tcc aca cag ctt att agg aat ggg gac tgg acc ttc cag gtc 677  
Val Ser Ser Thr Gln Leu Ile Arg Asn Gly Asp Trp Thr Phe Gln Val  
205 210 215

ctg gtc atg ctg gag atg acc cct cat cag gga gag gtc tac acc tgc 725  
Leu Val Met Leu Glu Met Thr Pro His Gln Gly Glu Val Tyr Thr Cys  
220 225 230 235

cat gtg gag cat ccc agc ctg aag agc ccc atc act gtg gag tgg agg 773  
His Val Glu His Pro Ser Leu Lys Ser Pro Ile Thr Val Glu Trp Arg  
240 245 250

gca cag tcc gag tct gcc cg<sup>g</sup> agc aag gga ggt gga gga tcc act aca 821  
Ala Gln Ser Glu Ser Ala Arg Ser Lys Gly Gly Gly Ser Thr Thr  
255 260 265

gct cca tca gct cag ttg aaa aag aaa ttg caa gca ctg aag aaa aag 869  
Ala Pro Ser Ala Gln Leu Lys Lys Lys Leu Gln Ala Leu Lys Lys Lys  
270 275 280

aac gct cag ctg aag tgg aaa ctt caa gcc ctc aag aag aaa ctc gcc 917  
Asn Ala Gln Leu Lys Trp Lys Leu Gln Ala Leu Lys Lys Lys Leu Ala  
285 290 295

cag cat cat cat cat cat tgagtcgacc tgc 951  
Gln His His His His His  
300 305

<210> 6

<211> 306

<212> PRT

<213> Artificial Sequence

<400> 6

Met Ala Leu Gln Ile Pro Ser Leu Leu Leu Ser Ala Ala Val Val Val  
1 5 10 15

Leu Met Val Leu Ser Ser Pro Gly Thr Glu Gly Gly Asn Ser Ile Cys  
20 25 30

Phe Ser Pro Ser Leu Glu His Pro Ile Val Val Ser Gly Ser Trp Asp  
35 40 45

Gly Gly Gly Ser Leu Val Pro Arg Gly Ser Gly Gly Gly Ser  
50 55 60

Glu Arg His Phe Val Val Gln Phe Lys Gly Glu Cys Tyr Tyr Thr Asn  
65 70 75 80

Gly Thr Gln Arg Ile Arg Leu Val Thr Arg Tyr Ile Tyr Asn Arg Glu  
85 90 95

Glu Tyr Val Arg Tyr Asp Ser Asp Val Gly Glu Tyr Arg Ala Val Thr  
100 105 110

Glu Leu Gly Arg Pro Asp Ala Glu Tyr Trp Asn Ser Gln Pro Glu Ile  
115 120 125

Leu Glu Arg Thr Arg Ala Glu Val Asp Thr Ala Cys Arg His Asn Tyr  
130 135 140

Glu Gly Pro Glu Thr Ser Thr Ser Leu Arg Arg Leu Glu Gln Pro Asn  
145 150 155 160

Val Ala Ile Ser Leu Ser Arg Thr Glu Ala Leu Asn His His Asn Thr  
165 170 175

Leu Val Cys Ser Val Thr Asp Phe Tyr Pro Ala Lys Ile Lys Val Arg  
180 185 190

Trp Phe Arg Asn Gly Gln Glu Glu Thr Val Gly Val Ser Ser Thr Gln  
195 200 205

Leu Ile Arg Asn Gly Asp Trp Thr Phe Gln Val Leu Val Met Leu Glu  
210 215 220

Met Thr Pro His Gln Gly Glu Val Tyr Thr Cys His Val Glu His Pro  
225 230 235 240

Ser Leu Lys Ser Pro Ile Thr Val Glu Trp Arg Ala Gln Ser Glu Ser  
245 250 255

Ala Arg Ser Lys Gly Gly Gly Ser Thr Thr Ala Pro Ser Ala Gln  
260 265 270

Leu Lys Lys Lys Leu Gln Ala Leu Lys Lys Lys Asn Ala Gln Leu Lys  
275 280 285

Trp Lys Leu Gln Ala Leu Lys Lys Lys Leu Ala Gln His His His His  
290 295 300

His His  
305

<210> 7  
<211> 918  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence:coding seq of  
SEQ ID NO:5

<220>  
<221> CDS  
<222> (1)..(918)

<400> 7  
atg gct ctg cag atc ccc agc ctc ctc ctc tca gct gct gtg gtg gtg 48  
Met Ala Leu Gln Ile Pro Ser Leu Leu Leu Ser Ala Ala Val Val Val  
1 5 10 15

|   |     |
|---|-----|
| ctg atg gtg ctg agc agc ccc ggg act gag ggc gga aac tcc atc tgc | 96  |
| Leu Met Val Leu Ser Ser Pro Gly Thr Glu Gly Gly Asn Ser Ile Cys |     |
| 20 25 30  |     |
| ttc tcg ccg tcg ctg gag cac ccg atc gtg gtg tcc ggc agc tgg gac | 144 |
| Phe Ser Pro Ser Leu Glu His Pro Ile Val Val Ser Gly Ser Trp Asp |     |
| 35 40 45  |     |
| gga ggt ggg ggc tca cta gtg ccc cga ggc tct gga ggt gga ggc tcc | 192 |
| Gly Gly Gly Ser Leu Val Pro Arg Gly Ser Gly Gly Gly Ser         |     |
| 50 55 60  |     |
| gaa agg cat ttc gtg gtc cag ttc aag ggc gag tgc tac tac acc aac | 240 |
| Glu Arg His Phe Val Val Gln Phe Lys Gly Glu Cys Tyr Tyr Thr Asn |     |
| 65 70 75 80   |     |
| ggg acg cag cgc ata cgg ctc gtg acc aga tac atc tac aac cgg gag | 288 |
| Gly Thr Gln Arg Ile Arg Leu Val Thr Arg Tyr Ile Tyr Asn Arg Glu |     |
| 85 90 95  |     |
| gag tac gtg cgc tac gac agc gac gtg ggc gag tac cgc gcg gtg acc | 336 |
| Glu Tyr Val Arg Tyr Asp Ser Asp Val Gly Glu Tyr Arg Ala Val Thr |     |
| 100 105 110   |     |
| gag ctg ggg cgg cca gac gcc gag tac tgg aac agc cag ccg gag atc | 384 |
| Glu Leu Gly Arg Pro Asp Ala Glu Tyr Trp Asn Ser Gln Pro Glu Ile |     |
| 115 120 125   |     |
| ctg gag cga acg cgg gcc gag gtg gac acg gcg tgc aga cac aac tac | 432 |
| Leu Glu Arg Thr Arg Ala Glu Val Asp Thr Ala Cys Arg His Asn Tyr |     |
| 130 135 140   |     |
| gag ggg ccg gag acc agc acc tcc ctg cgg cgg ctt gaa cag ccc aat | 480 |
| Glu Gly Pro Glu Thr Ser Thr Ser Leu Arg Arg Leu Glu Gln Pro Asn |     |
| 145 150 155 160   |     |
| gtc gcc atc tcc ctg tcc agg aca gag gcc ctc aac cac cac aac act | 528 |
| Val Ala Ile Ser Leu Ser Arg Thr Glu Ala Leu Asn His His Asn Thr |     |
| 165 170 175   |     |
| ctg gtc tgt tcg gtg aca gat ttc tac cca gcc aag atc aaa gtg cgc | 576 |
| Leu Val Cys Ser Val Thr Asp Phe Tyr Pro Ala Lys Ile Lys Val Arg |     |
| 180 185 190   |     |
| tgg ttc agg aat ggc cag gag gag aca gtg ggg gtc tca tcc aca cag | 624 |
| Trp Phe Arg Asn Gly Gln Glu Glu Thr Val Gly Val Ser Ser Thr Gln |     |
| 195 200 205   |     |
| ctt att agg aat ggg gac tgg acc ttc cag gtc ctg gtc atg ctg gag | 672 |
| Leu Ile Arg Asn Gly Asp Trp Thr Phe Gln Val Leu Val Met Leu Glu |     |
| 210 215 220   |     |
| atg acc cct cat cag gga gag gtc tac acc tgc cat gtg gag cat ccc | 720 |
| Met Thr Pro His Gln Gly Glu Val Tyr Thr Cys His Val Glu His Pro |     |
| 225 230 235 240   |     |

|   |     |     |     |
|---|-----|-----|-----|
| agc ctg aag agc ccc atc act gtg gag tgg agg gca cag tcc gag tct | 768 |     |     |
| Ser Leu Lys Ser Pro Ile Thr Val Glu Trp Arg Ala Gln Ser Glu Ser |     |     |     |
| 245   | 250 | 255 |     |
| gcc cgg agc aag gga ggt gga gga tcc act aca gct cca tca gct cag | 816 |     |     |
| Ala Arg Ser Lys Gly Gly Gly Ser Thr Thr Ala Pro Ser Ala Gln     |     |     |     |
| 260   | 265 | 270 |     |
| ttg aaa aag aaa ttg caa gca ctg aag aaa aag aac gct cag ctg aag | 864 |     |     |
| Leu Lys Lys Leu Gln Ala Leu Lys Lys Lys Asn Ala Gln Leu Lys     |     |     |     |
| 275   | 280 | 285 |     |
| tgg aaa ctt caa gcc ctc aag aag aaa ctc gcc cag cat cat cat cat | 912 |     |     |
| Trp Lys Leu Gln Ala Leu Lys Lys Lys Leu Ala Gln His His His His |     |     |     |
| 290   | 295 | 300 |     |
| cat cat   | 918 |     |     |
| His His   |     |     |     |
| 305   |     |     |     |
| <210> 8   |     |     |     |
| <211> 306   |     |     |     |
| <212> PRT   |     |     |     |
| <213> Artificial Sequence                                       |     |     |     |
| <400> 8   |     |     |     |
| Met Ala Leu Gln Ile Pro Ser Leu Leu Leu Ser Ala Ala Val Val Val |     |     |     |
| 1   | 5   | 10  | 15  |
| Leu Met Val Leu Ser Ser Pro Gly Thr Glu Gly Gly Asn Ser Ile Cys |     |     |     |
| 20  | 25  | 30  |     |
| Phe Ser Pro Ser Leu Glu His Pro Ile Val Val Ser Gly Ser Trp Asp |     |     |     |
| 35  | 40  | 45  |     |
| Gly Gly Gly Ser Leu Val Pro Arg Gly Ser Gly Gly Gly Ser         |     |     |     |
| 50  | 55  | 60  |     |
| Glu Arg His Phe Val Val Gln Phe Lys Gly Glu Cys Tyr Tyr Thr Asn |     |     |     |
| 65  | 70  | 75  | 80  |
| Gly Thr Gln Arg Ile Arg Leu Val Thr Arg Tyr Ile Tyr Asn Arg Glu |     |     |     |
| 85  | 90  | 95  |     |
| Glu Tyr Val Arg Tyr Asp Ser Asp Val Gly Glu Tyr Arg Ala Val Thr |     |     |     |
| 100   | 105 | 110 |     |
| Glu Leu Gly Arg Pro Asp Ala Glu Tyr Trp Asn Ser Gln Pro Glu Ile |     |     |     |
| 115   | 120 | 125 |     |
| Leu Glu Arg Thr Arg Ala Glu Val Asp Thr Ala Cys Arg His Asn Tyr |     |     |     |
| 130   | 135 | 140 |     |
| Glu Gly Pro Glu Thr Ser Thr Ser Leu Arg Arg Leu Glu Gln Pro Asn |     |     |     |
| 145   | 150 | 155 | 160 |

Val Ala Ile Ser Leu Ser Arg Thr Glu Ala Leu Asn His His Asn Thr  
165 170 175

Leu Val Cys Ser Val Thr Asp Phe Tyr Pro Ala Lys Ile Lys Val Arg  
180 185 190

Trp Phe Arg Asn Gly Gln Glu Glu Thr Val Gly Val Ser Ser Thr Gln  
195 200 205

Leu Ile Arg Asn Gly Asp Trp Thr Phe Gln Val Leu Val Met Leu Glu  
210 215 220

Met Thr Pro His Gln Gly Glu Val Tyr Thr Cys His Val Glu His Pro  
225 230 235 240

Ser Leu Lys Ser Pro Ile Thr Val Glu Trp Arg Ala Gln Ser Glu Ser  
245 250 255

Ala Arg Ser Lys Gly Gly Ser Thr Thr Ala Pro Ser Ala Gln  
260 265 270

Leu Lys Lys Leu Gln Ala Leu Lys Lys Lys Asn Ala Gln Leu Lys  
275 280 285

Trp Lys Leu Gln Ala Leu Lys Lys Lys Leu Ala Gln His His His  
290 295 300

His His  
305